

PATENT APPLICATION

**WHAT IS CLAIMED IS:**

1. 1. A method comprising:  
super-cooling a solute to produce a pre-conditioned solute, and using the  
pre-conditioned solute as a heat exchange medium;  
wherein the step of super-cooling alters a heat  
absorption rate of the solute, such that the pre-conditioned solute has an  
increased heat absorption rate as compared to the solute prior to conditioning.

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- 1        2. A system comprising:
  - 2        a tank capable of holding a predetermined amount of liquid;
  - 3        a circulator capable of circulating said liquid;
  - 4        a refrigeration system capable of cooling said liquid; and
  - 5        a pre-conditioned solute having an altered heat absorption rate.
  
- 1        3. The system as in Claim 2, wherein said pre-conditioned solute is a solute having been conditioned by being super-cooled at an average rate of at least about 6.5°C per minute.
  
- 1        4. The system as in Claim 2, wherein said pre-conditioned solute is a solute having been conditioned by being super-cooled from room temperature to a temperature of less than about -23°C.
  
- 1        5. The system as in Claim 2, wherein said pre-conditioned solute is a solute having been conditioned by being super-cooled from room temperature to between about -23°C and -26°C.
  
- 1        6. The system as in Claim 2, wherein said pre-conditioned solute is a solute having been conditioned by being super-cooled at an average rate of between about 6.5°C and 8.5°C per minute.
  
- 1        7. The system as in Claim 2, wherein said pre-conditioned solute is a solute having been conditioned by being super-cooled, for at least a portion of time, at an average rate of at least about 17°C per minute.
  
- 1        8. The system as in Claim 2, wherein the heat absorption rate of the pre-conditioned solute is about 135 BTU at a temperature of between about -23°C

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3 and -26°C.

- 1 9. The system as in Claim 2, wherein at least a portion of the pre-conditioned
- 2 solute remains in a super-cooled state, such that the pre-conditioned solute
- 3 exhibits no spike in temperature upon subsequently being cooled from room
- 4 temperature to between about -23°C and -26°C.
- 1 10. The system as in Claim 2, wherein said pre-conditioned solute includes
- 2 propylene glycol.
- 1 11. The system as in Claim 10, wherein the pre-conditioned solute includes:
- 2 about 50 per cent water;
- 3 about 50 percent propylene glycol; and
- 4 about 1 percent surfactant.
- 1 12. The system as in Claim 2, wherein said pre-conditioned solute includes
- 2 glycerol.

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- 1 13. A heat exchange medium comprising a liquid having an altered heat
- 2 absorption rate.
- 1 14. The heat exchange medium as in Claim 13, wherein the heat absorption rate
- 2 of said liquid is altered by a process including super-cooling a liquid with an
- 3 unaltered heat absorption rate at an average rate of at least about 6.5°C per
- 4 minute.
- 1 15. The heat exchange medium as in Claim 13, wherein the heat absorption rate
- 2 of said liquid is altered by a process including super-cooling a liquid with an
- 3 unaltered heat absorption rate to a temperature of less than about -23°C.
- 1 16. The heat exchange medium as in Claim 13, wherein the heat absorption rate
- 2 of said liquid is altered by a process including super-cooling a liquid with an
- 3 unaltered heat absorption rate from room temperature to between about -23°C
- 4 and -26°C.
- 1 17. The heat exchange medium as in Claim 13, wherein the heat absorption rate
- 2 of said liquid is altered by a process including super-cooling a liquid with an
- 3 unaltered heat absorption rate at an average rate of between about 6.5°C and
- 4 8.5°C per minute.
- 1 18. The heat exchange medium as in Claim 13, wherein the heat absorption rate
- 2 of said liquid is altered by a process including super-cooling a liquid with an
- 3 unaltered heat absorption rate, for at least a portion of time, at an average rate
- 4 of at least about 17°C per minute.
- 1 19. The heat exchange medium as in Claim 13, wherein the altered heat

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2           absorption rate of the liquid is about 135 BTU at a temperature of between  
3           about -23°C and -26°C.

1           20. The heat exchange medium as in Claim 13, wherein at least a portion of said  
2           liquid remains in a super-cooled state, such that said liquid exhibits no spike in  
3           temperature upon subsequently being cooled from room temperature to  
4           between about -23°C and -26°C.

1           21. The heat exchange medium as in Claim 13, wherein said liquid includes  
2           propylene glycol.

1           22. The heat exchange medium as in Claim 21, wherein said liquid includes:  
2           about 50 per cent water;  
3           about 50 percent propylene glycol; and  
4           about 1 percent surfactant.

1           23. The heat exchange medium as in Claim 13, wherein said liquid includes  
2           glycerol.